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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/870,026	05/30/2001	Chinping Q. Yang	SONY/89	9006

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EXAMINER	
MAI, TAN V	

ART UNIT	PAPER NUMBER
2124	2

DATE MAILED: 01/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/870,026	YANG ET AL.	
	Examiner	Art Unit	
	Tan V Mai	2124	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-25 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-25 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

1. The abstract of the disclosure is objected to because the Abstract contains the undefined acronym "IIR". All such acronyms should be defined at the instance of their first use within the Abstract. Correction is required. See MPEP § 608.01(b).

2. Claims 2-3 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claim 2, the phrase "**increasing the precision** with which a feedback signal is recorded" is NOT understood. It is unclear whether or not the "a feedback signal" is the same as "a feedback signal" in claim 1. Similarity noted claim 13 "with increased precision".

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito.

As per independent claim 1, ito discloses, e.g., see Figs. 3-4 & 6, the invention substantially as claimed, including: a "feedback signal" (i.e., the output of element (22)), and an "incoming signal" (i.e., INPUT DATA of Fig. 3 or (C.D)k signal of Fig. 4). It is noted that Ito does NOT specifically disclose the claimed (1) IIR filter and (2) "discard at

least one bit from the feedback signal" features; however, (1) Ito does disclose the circuit is capable of performing "multiplication & accumulation functions". The "multiplication & accumulation functions" are well known in the filter art, and (2) Ito does disclose the "feedback signal" is maybe a result of shifter (8) which provides a "round-off" result via the "SHIFT NO." signal. Therefore, the "feedback signal" is equivalent to the claimed "discard at least one bit from the feedback signal". It would have been obvious to a person having ordinary skill in the art at the time the invention was made to design the claimed invention according to Ito's teachings because the circuit is a multiplication/accumulation device which is capable of performing sum of product having feedback "round-off" feature as claimed.

As per claim 2, the shifter (8) can provide the different values of "feedback signal", e.g., see Fig. 6.

As per claim 3, the claim adds "buffering the feedback signal with double precision" feature. The feature is obvious to a person having ordinary skill in the art for storing the data in desired format.

As per claim 4, Ito does disclose the claimed feature.

As per claim 5, the claim adds "shifting the feedback signal one bit toward a less significant bit" feature. The shifter (8) can provide the claimed feature.

As per claim 6, the claim adds "communicating the feedback signal to a microprocessor" feature. The feature is obvious to a person having ordinary skill in the DSP art.

As per claims 7-8, Ito does the claimed features.

As per claims 9-10, the shifter (8) is capable of "multiplying"/"outputting" by shifting a data.

As per claim 11, the claim adds "determining when discarding a bit from the feedback signal is required to avoid overflow" feature. Ito does mention "[w]hen the round-off is not necessary, the initial value is set zero. For round-off operation, the initial value ..." (Abstract) and "[r]ound-off circuit 11, which usually includes an adder circuit, causes a problem in that the circuit configuration become large" (col. 2, lines 8-10). The disclosure implies the "round-off" operation for preventing the undesired result (i.e., underflow or overflow).

As per claims 12-25, the claims recite (1) an apparatus having microprocessor with program code (claims 12-22) and (2) program product (claims 23-25) for preventing overflow in an777 IIR filter. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to design the claimed invention in either an apparatus having microprocessor with program code or program product according to Ito's teachings because the circuit is a multiplication/accumulation device which is capable of performing sum of product having feedback "round-off" feature as claimed.

5. Claims 1, 4-12, and 14-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nillesen.

As per independent claim 1, Nillesen discloses, e.g., see Fig., the invention substantially as claimed, including: a "feedback signal" (11), and an "incoming signal" (1). It is noted that Nillesen does NOT specifically disclose the claimed "discard at least one bit from the feedback signal" features; however, (1) Nillesen does disclose the

"feedback signal" is a result of truncation circuit (37). Therefore, the "feedback signal" is equivalent to the claimed "discard at least one bit from the feedback signal". It would have been obvious to a person having ordinary skill in the art at the time the invention was made to design the claimed invention according to Nillesen's teachings because the circuit is a recursive filter having feedback "truncation" feature as claimed.

As per claim 4, Nillesen does disclose the claimed feature.

As per claim 5, the claim adds "shifting the feedback signal one bit toward a less significant bit" feature. The truncation circuit (37) can provide the claimed feature, e.g., see col. 2, lines 17-27.

As per claim 6, the claim adds "communicating the feedback signal to a microprocessor" feature. The feature is obvious to a person having ordinary skill in the DSP art.

As per claims 7-8, Nillesen does the claimed features.

As per claims 9-10, the transfer circuit (15) is capable of "multiplying"/"outputting" a data.

As per claim 11, the claim adds "determining when discarding a bit from the feedback signal is required to avoid overflow" feature. Nillesen does mention "[a]n object of the invention is to prevent this unwanted circulation of signal residues in the filter" (col. 1, lines 31-32). The disclosure implies the "truncation" operation for preventing the undesired result (i.e., underflow or overflow).

As per claims 12 and 14-25, the claims recite (1) an apparatus having microprocessor with program code (claims 12, 14-22) and (2) program product (claims 23-25) for preventing overflow in an IIR filter. It would have been obvious to a person

having ordinary skill in the art at the time the invention was made to design the claimed invention in either an apparatus having microprocessor with program code or program product according to Nillesen's teachings because the circuit is a recursive filter having feedback "truncation" feature as claimed.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Cited references are art of interest.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tan V. Mai whose telephone number is (703) 305-9761. The examiner can normally be reached on Tue-Fri from 6:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki, can be reached on (703) 305-9662. The fax phone numbers for the organization where this application or proceeding is assigned are:

After-final	(703) 746-7238
Official	(703) 746-7239
Non-Official/Draft	(703) 746-7240.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Mai

TAN V. MAI
PRIMARY EXAMINER